OCTYLALDEHYDE
CASRN: 124-13-0

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Best Sections

Atmospheric Concentrations :
URBAN/SUBURBAN: Air samples were collected in Milan in Feb, Rome in Sept, and Taranto in Aug 1991, located in northern, central, and southern Italy, respectively. Concentrations of octylaldehyde were **0**.36-**0**.40, **0**.**13**-1.14, and **0**.46-1.05 ppbv in Milan, Rome, and Taranto, respectively(1). Seven suburban air samples taken Aug 1991 from the town of Montelibretti, Italy, contained octylaldehyde at concentrations of **0**.14-**0**.89 ppbv(1). Octylaldehyde was detected in ambient air in The Netherlands at a mean concentration of **0**.05 ppb with a maximum of **0**.50 ppb(2). Octylaldehyde was not detected in samples taken at the top of an 11 story building on the campus of Hong Kong University Science and Technology, Kowloon, Hong Kong(3). Octylaldehyde was detected at an avg of **0**.32 ppb in 12 of **13** Helsinki samples tested May to Sep 1997(4).
[(1) Ciccioli P et al; Atmos Environ 27A: 1891-1901 (1993) (2) Guicherit R, Schulting FL; Sci Total Environ 43: 193-219 (1985) (3) Ho SSH, Yu JZ; Environ Sci Technol 38: 862-70 (2004) (4) Jurvelin JA et al; J Air Waste Manage Assoc 53: 560-73 (2003)] **PEER REVIEWED**

Atmospheric Concentrations :
RURAL/REMOTE: Two rural sites in Italy, Monti Cimini Forest and Lido di Ostia had octylaldehyde concentrations of **0**.91-1.83 ppbv from 11 samples taken Aug 1990, and **0**.57-2.32 ppbv from 4 samples taken Feb 1992, respectively(1). Four air samples collected from a large forest area near Storkow, East Germany, July 1991, contained octylaldehyde at concentrations of **0**.**13**-**0**.81 ppbv(1). Outdoor air from the Kanawha Valley, West Virginia contained octylaldehyde from trace amounts to 1,044 ng/cu m(2). Air samples from a rural forested site in the Sierra Nevada Mountains, California, contained octylaldehyde at unreported concentrations(3). Octylaldehyde was detected, not quantified in air samples taken from the Southern Black Forest, Germany(4).
[(1) Ciccioli P et al; Atmos Environ 27A: 1891-1901 (1993) (2) Erickson MD, Pellizzari ED; Analysis of Organic Air Pollutants in the Kanawha Valley, WV and the Shenandoah Valley, VA. USEPA-903/9-78-007 (1978) (3) Helmig D, Arey J; Sci Total Environ 112: 233-50 (1992) (4) Juttner F; Chemosphere 15: 985-92 (1986)] **PEER REVIEWED**

Other Chemical/Physical Properties :
Apparent partition coefficients (K*, in M/atm) of 15 carbonyl compounds including octylaldehyde between water and air were determined as a function of temperature, salinity, and pH. Values for K* decreased with increasing carbon number of alkanals; eg, at 25 deg C apparent partition coefficients between air and seawater range from 3710 for

formaldehyde and 13.1 for acetaldehyde to 0.181 for decanal. log K* was found-to be highly temperature dependent, varying linearly with l/T for all compounds studied. The salinity effect on K* increases with increasing molecular weight; K* (seawater)/K*(freshwater) ratios range from close to 1 for formaldehyde and acetaldehyde to less than 0.3 for nonanal and decanal. The effect of pH in the range of 4-8 on K* as found to be negligible.
[Zhou X, Mopper K; Environ Sci Technol; 24 (12): 1864-9 (1990)] **PEER REVIEWED**

Food Survey Values :
Octylaldehyde was detected in peanut oil, heated to 200 deg C, at unreported concentrations(1). Commercial rice cakes were found to contain 800-960 ppb of octylaldehyde(2). Octylaldehyde was identified in gari and farine, both products of cassava(3), in Beaufort cheese(4), roasted filberts(5), heated corn oil(6), kiwi fruit flowers(7), in both commercial and concentrated aqueous orange essences(8). Bisbee Delicious apples from Washington state emitted increasing concentrations of octylaldehyde through the end of August (to 1671.9 pL/kg-hr) but concentrations decreased in apples harvested after this point (to 32.4-141.9 pL/kg-hr)(9). Octylaldehyde was detected in raw and roasted earth almonds (Cyperus esculentus L.)(10). Octylaldehyde was detected in the emissions from heated rapeseed oil(11).Commercial samples of California navel orange, Florida Valencia orange, midseason orange, tangerine, and white grapefruit cold-pressed oils contained 0.161, 0.449, 0.358, 0.371, 0.493 wt% octylaldehyde, respectively(12). Octylaldehyde was detected in whole and ground musty sorghum with direct helium-purge method and with supercritical fluid extraction method(13).
[(1) Chung TY et al; J Agric Food Chem 41: 1467-70 (1993) (2) Buttery RG et al; J Agric Food Chem 47: 4353-6 (1999) (3) Dougan J et al; J Sci Food Agric 34: 874-84 (1983) (4) Dumont JP, Adda J; J Agric Food Chem 26: 364-67 (1978) (5) Kinlin TE et al; J Agr Food Chem 20: 1021-8 (1972) (6) Matiella JE, Hsieh TCY; J Food Sci 56: 387-90 (1991) (7) Tatsuka K et al; J Agric Food Chem 38: 2176-80 (1990) (8) Moshonas MG, Shaw PE; J Agric Food Chem 38: 2181-84 (1990) (9) Mattheis JP et al; J Agric Food Chem 39: 1902- 6 (1991) (10) Cantalejo MJ; J Agric Food Chem 45: 1853-60 (1997) (11) Pellizzari ED et al; J Exposure Anal Environ Epidemiol 5: 77-87 (1995) (12) Wilson CWIII, Shaw PE; J Agric Food Chem 32: 399-401 (1984) (13) Seitz LM et al; J Agric Food Chem 47: 1051-61 (1999)] **PEER REVIEWED**

Atmospheric Concentrations :
INDOOR AIR: Octylaldehyde was detected in residential, indoor air at concentrations ranging from not detected to 22 ug/cu m(1). 46% of indoor air samples taken from residential housing contained octylaldehyde at an avg concentration of 4.63 ug/cu m(2). Indoor air sampled from new or recently renovated buildings contained octylaldehyde at 287 ug/cu m(3). Octylaldehyde was found at 1.4-3.6 ppb in new manufactured and at 1.4-7.2 ppb in site-built houses(4). Octylaldehyde was found in 15 of 15 indoor residences at an avg concentration of 0.95 ppb and 9 of 9 work places at an avg concentration of 0.61 ppb in Helsinki, Finland samples tested May to September 1997(5). Octylaldehyde was

detected not quantified inside the vehicles of 50 late shift patrol cars sampled from August 13 to October 11, 2001(6).
[(1) De Bortoli M et al; Environ Internat 12: 343-50 (1986) (2) Kostiainen R; Atmos Environ 29: 693-702 (1995) (3) Rothweiler H et al; Atmos Environ 26A: 2219-25 (1992) (4) Hodgson AT et al; Indoor Air 10: 178-92 (2000) (5) Jurvelin JA et al; J Air Waste Manage Assoc 53: 560-73 (2003) (6) Riediker M et al; Environ Sci Technol 37: 2084-93 (2003)] **PEER REVIEWED**

Food Survey Values :
Octylaldehyde was identified as a volatile component of raw beef(1) and in scrambled eggs(2) at unreported concentrations. Octylaldehyde was measured at 999 ng/g and 1080 ng/g in big eyed herring paste and hair tail viscera paste, and was not detected in anchovy paste or shrimp paste(3). Octylaldehyde was detected in full fat and reduced fat frankfurters(4), Italian-type dry-cured ham(5), and as an odorant in cooked mussels (Mytilus edulis)(6). Octylaldehyde was released from charbroiling meat at 146,000 ug/kg of cooked meat(7). Aroma concentrates of uncured beef and chicken contained 0.69 mg/kg and 5.08 mg/kg octylaldehyde, respectively(8). Octylaldehyde was isolated as a volatile component of duck meat at 9.3 ppb, duck fat at 13.64 ppb, Cantonese style roasted duck at 9.66 ppb and Cantonese style roasted duck gravy at 38.08 ppb(9).
[(1) King MF et al; J Agric Food Chem 41: 1974-81 (1993) (2) Matiella JE, Hsieh TCY; J Food Sci 56: 387-90 (1991) (3) Cha YJ, Cadwallader KR; J Food Sci 60: 19-24 (1995) (4) Chevance FFV, Farmer LJ; J Agric Food Chem 47: 5161-8 (1999) (5) Hinrichsen LL, Pedersen SB; J Agric Food Chem 43: 2932-40 (1995) (6) Leguen S et al; J Agric Food Chem 48: 1307-14 (2000) (7) Schauer JJ et al; Environ Sci Technol 33: 1566-77 (1999) (8) Ramarathnam N et al; J Agric Food Chem 39: 1839-47 (1991) (9) Wu CM, Liou SE; J Agric Food Chem 40: 838-41 (1992)] **PEER REVIEWED**

Major Uses :
Reported uses (ppm): (FEMA, 2005)

Reported uses (ppm): (FEMA, 2005)

Food Category	Usual	Max.
Baked goods	0.76	4.40
Chewing gum	0.10	0.10
Frozen dairy	0.51	1.60
Gelatins, puddings	2.40	6.10
Hard candy	1.30	3.40
Nonalcoholic beverages	0.34	1.40

[Burdock, G.A. (ed.). Fenaroli's Handbook of Flavor Ingredients. 5th ed.Boca Raton, FL 2005, p. 1414] **PEER REVIEWED**

Plant Concentrations :
Octylaldehyde was detected in raw earth almonds (Cyperus esculentus L.)(1). Octylaldehyde was detected in the emissions from northern red oak, dawn redwood, bass wood, eastern hemlock, iron wood, slippery elm, loblolly pine and black gum trees from Fernbank Forest, Atlanta, GA, from sugar maple, cotton grass, and yellow birch trees from Willow Springs, WI and apple, big sugar bush, willow, Gambell oak, service berry, snow berry and salt bush trees from Temple Ridge, Hayden, CO(2). Octylaldehyde was detected in the emissions of Quercus ilex (oak) from the Mediterranean(3). Octylaldehyde was emitted from rape during the blooming period at a rate of **0**.04-**0**.15 and **0**.06-**0**.19 ppbv on May 8 and 9, 1998(4). Octylaldehyde was detected in whole musty sorghum with direct helium-purge method and with supercritical fluid extraction method(5).
[(1) Cantalejo MJ; J Agric Food Chem 45: 1853-60 (1997) (2) Helmig D et al; Chemosphere 38: 2163-87 (1999) (3) Kesselmeier J et al; Atmos Environ 30: 1841-50 (1996) (4) Muller K et al; Chemosphere 49: 1247-56 (2002) (5) Seitz LM et al; J Agric Food Chem 47: 1051-61 (1999)] **PEER REVIEWED**

Ecotoxicity Values :
LC50; Species: Pimephales promelas (Fathead minnow, juvenile 26-34 days old); Conditions: freshwater, flow through; Concentration: **13**.5 mg/L for 96 hr /data for metabolic precursor, 1-octanol/
[EPA/Office of Pollution Prevention and Toxics; High Production Volume Information System (HPVIS) on Octanal (124-13-0). Available from, as of January 30, 2009: http://www.epa.gov/hpvis/index.html **PEER REVIEWED**

Other Chemical/Physical Properties :
Density: **0**.820-**0**.830; index of refraction: 1.418-1.425
[Lewis, R.J. Sr.; Hawley's Condensed Chemical Dictionary 15th Edition. John Wiley & Sons, Inc. New York, NY 2007., p. 918] **PEER REVIEWED**

NFPA Hazard Classification :
Instability: **0**. **0**= This degree includes materials that are normally stable, even under fire exposure conditions, and that do not react with water. Normal fire fighting procedures may be used.
[Fire Protection Guide to Hazardous Materials. 13 ed. Quincy, MA: National Fire Protection Association, 2002., p. 325-28] **PEER REVIEWED**

Volatilization from Water/Soil :
The Henry's Law constant for octylaldehyde is 5.14X10-4 atm-cu m/mole(1). This Henry's Law constant indicates that octylaldehyde is expected to volatilize from water surfaces(2). Based on this Henry's Law constant, the volatilization half-life from a model

river (1 m deep, flowing 1 m/sec, wind velocity of 3 m/sec)(2) is estimated as 5 hrs(SRC). The volatilization half-life from a model lake (1 m deep, flowing 0.05 m/sec, wind velocity of 0.5 m/sec)(2) is estimated as 5 days(SRC). Octylaldehyde's Henry's Law constant indicates that volatilization from moist soil surfaces may occur(SRC). The potential for volatilization of octylaldehyde from dry soil surfaces may exist based upon a vapor pressure of 1.18 mm Hg(3).
[(1) Buttery RG et al; J Agric Food Chem 17: 385-9 (1969) (2) Lyman WJ et al; Handbook of Chemical Property Estimation Methods. Washington, DC: Amer Chem Soc pp. 15-1 to 15-29 (1990) (3) Daubert TE, Danner RP; Physical and Thermodynamic Properties of Pure Chemicals: Data Compilation. Design Inst Phys Prop Data, Amer Inst Chem Eng. Hemisphere Publ Corp, NY, NY, 4 Vol (1987)] **PEER REVIEWED**

Other Chemical/Physical Properties :
Liquid Molar Volume = 0.15704 cu m/kmol; IG Heat of Formation = -2.8464X10+8 J/kmol; Heat of Fusion at Melting Point = 2.613X10+7 J/kmol
[Daubert, T.E., R.P. Danner. Physical and Thermodynamic Properties of Pure Chemicals Data Compilation. Washington, D.C.: Taylor and Francis, 1989.] **PEER REVIEWED**

Antidote and Emergency Treatment :
/SRP:/ Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Aggressive airway management may be necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Anticipate seizures and treat if necessary ... . Monitor for shock and treat if necessary ... . Monitor for pulmonary edema and treat if necessary ... . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport ... . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal ... . /Aldehydes and Related Compounds/
[Currance, P.L. Clements, B., Bronstein, A.C. (Eds).; Emergency Care For Hazardous Materials Exposure. 3Rd edition, Elsevier Mosby, St. Louis, MO 2005, p. 266-7] **PEER REVIEWED**

Antidote and Emergency Treatment :
/SRP:/ Advanced treatment: Consider Consider orotracheal or nasotracheal intubation for airway control in the patient who is unconscious, has severe pulmonary edema, or is in severe respiratory distress. Intubation should be considered at the first sign of upper airway obstruction caused by edema. Positive-pressure ventilation techniques with a bag valve mask device may be beneficial. Consider drug therapy for pulmonary edema ... . Consider administering a beta agonist such as albuterol for severe bronchospasm ... . Start IV administration of D5W /SRP: "To keep open", minimal flow rate/. Use 0.9% saline (NS) or lactated Ringer's (LR) if signs of hypovolemia are present. For hypotension with signs of hypovolemia, administer fluid cautiously. Consider vasopressors if patient is hypotensive with a normal fluid volume. Watch for signs of fluid overload ... . Treat

seizures with diazepam or lorazepam ... . Use proparacaine hydrochloride to assist eye irrigation ... . /Aldehydes and Related Compounds/
[Currance, P.L. Clements, B., Bronstein, A.C. (Eds).; Emergency Care For Hazardous Materials Exposure. 3Rd edition, Elsevier Mosby, St. Louis, MO 2005, p. 267] **PEER REVIEWED**

Non-Human Toxicity Excerpts :
/LABORATORY ANIMALS: Developmental or Reproductive Toxicity/ Female Sprague Dawley rats given doses of 1, 1125, 1500 mg/kg/day by oral gavage. The rats were treated once daily (days 6-15 of gestation). Maternal data with dose level: No effect on number of implants, but decreased body weight ind ams at both dose levels. Fetal data with dose level: Significant decrease ($p<0.05$) in the number of live pups at the high dose only; no effect on perinatal loss (%) or pup weight at either dose. Octanoic acid induced a significant decrease in the number of live pups in Sprague Dawley rats but only at a dose, which causes maternal toxicity.
[USEPA; High Production Volume Information System (HPVIS) for Octanal (124-13-0). Available from database query: http://www.epa.gov/hpvis/index.html on Heptanal as of January 16, 2008] **PEER REVIEWED**

Probable Routes of Human Exposure :
Octylaldehyde was found in 15 of 15 personal air samples at an average concentration of 0.61 ppb from samples taken in Helsinki, Finalnd, tested May to September 1997(1).
[(1) Jurvelin JA et al; J Air Waste Manage Assoc 53: 560-73 (2003)] **PEER REVIEWED**

Allowable Tolerances :
Residues of 1-octanal are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Use: odor masking agent. Limit: not more than 0.2% of the pesticide formulation.
[40 CFR 180.910 (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of January 26, 2009: http://www.gpoaccess.gov/ecfr **PEER REVIEWED**

Allowable Tolerances :
Residues of 1-octanal are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to animals. Use: odor masking agent. Limit: not more than 0.2% of the pesticide formulation.
[40 CFR 180.930 (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of January 26, 2009: http://www.gpoaccess.gov/ecfr **PEER REVIEWED**

FIFRA Requirements :
Residues of 1-octanal are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Use: odor masking agent. Limit: not more than **0**.2% of the pesticide formulation.
[40 CFR 180.910 (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of January 26, 2009: http://www.gpoaccess.gov/ecfr **PEER REVIEWED**

FIFRA Requirements :
Residues of 1-octanal are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to animals. Use: odor masking agent. Limit: not more than **0**.2% of the pesticide formulation.
[40 CFR 180.930 (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of January 26, 2009: http://www.gpoaccess.gov/ecfr **PEER REVIEWED**

Analytic Laboratory Methods :
EMSLC Method #554. Determination of Carbonyl Compounds in Drinking Water by Dinitrophenyl Hydrazine Derivatization and High Performance Liquid Chromatography. Revision 1.**0**. Detection limit = 6 ug/L.
[USEPA; EMMI. Environmental Monitoring Methods Index. Version 2.0. (NTIS PB-95-502415) (1995)] **PEER REVIEWED**

Analytic Laboratory Methods :
Method: EPA-TSC/NERL 556; Procedure: gas chromatography with electron capture detector; Analyte: octyaldehyde; Matrix: finished drinking water and raw source water; Detection Limit: **0**.6 ug/L.
[National Environmental Methods Index; Analytical, Test and Sampling Methods. Available from http://www.nemi.gov on Octyaldehyde (124-13-0) as of February 10, 2009] **PEER REVIEWED**

Analytic Laboratory Methods :
Method: EPA-OGWDW/TSC 556.1; Procedure: fast gas chromatography system equipped with an electron capture detector; Analyte: octyaldehyde; Matrix: finished drinking water and raw source water; Detection Limit: **0**.22 ug/L.
[National Environmental Methods Index; Analytical, Test and Sampling Methods. Available from http://www.nemi.gov on Octyaldehyde (124-13-0) as of February 10, 2009] **PEER REVIEWED**

Emergency Medical Treatment :

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The following Overview, *** ACETALDEHYDE ***, is relevant for this HSDB record chemical.

Life Support:

- This overview assumes that basic life support measures have been instituted.

Clinical Effects:

0.2.1 SUMMARY OF EXPOSURE

0.2.1.1 ACUTE EXPOSURE

A) This agent is a skin and mucous membrane irritant which causes a burning sensation of the nose, throat, and eyes. Prolonged exposure to high concentrations may injure the corneal epithelium causing persistent lacrimation, photophobia, and foreign body sensation.

B) Fatalities, following inhalation, are due to anesthesia when prompt and pulmonary edema when delayed. Very large exposures may cause death due to respiratory paralysis.

C) Prolonged skin contact may cause dermal erythema and burns. Repeated exposures may cause dermatitis due to primary irritation or sensitization.

D) Sympathomimetic effects of acetaldehyde include tachycardia, hypertension, and increased respiration. Bradycardia and hypotension occur at higher levels of acetaldehyde exposure.

0.2.3 VITAL SIGNS

0.2.3.1 ACUTE EXPOSURE

A) Increased ventilation, hypertension, and tachycardia are sympathomimetic effects which may develop at low levels of exposure.

B) Higher levels produce bradycardia and hypotension.

0.2.4 HEENT

0.2.4.1 ACUTE EXPOSURE

A) Human eye irritation begins to occur at 50 ppm in the air and becomes excessive at 200 ppm. Splash contacts produce painful but superficial corneal injury. Changes in auditory sensitivity were noted in one foreign study of vapor exposures.

0.2.5 CARDIOVASCULAR

0.2.5.1 ACUTE EXPOSURE

A) In humans, systemic poisoning can result in sympathomimetic effects of tachycardia and hypertension.

B) Ventricular dysrhythmias have occurred in halothane anesthetized animals given acetaldehyde.

0.2.6 RESPIRATORY

0.2.6.1 ACUTE EXPOSURE

A) Acetaldehyde is a pulmonary irritant and may cause bronchitis and pulmonary edema when inhaled. Very high concentrations may result in respiratory paralysis.

0.2.7 NEUROLOGIC

0.2.7.1 ACUTE EXPOSURE

A) High serum concentrations have caused narcosis in animals.

0.2.8 GASTROINTESTINAL

0.2.8.1 ACUTE EXPOSURE

A) Liquid acetaldehyde is an emetic.

0.2.9 HEPATIC

0.2.9.1 ACUTE EXPOSURE

A) Acetaldehyde can impair mitochondrial respiration in the liver, similar to effects seen with ethanol.

0.2.14 DERMATOLOGIC

0.2.14.1 ACUTE EXPOSURE

A) Prolonged contact causes erythema and burns. Repeated exposures may cause dermatitis.

0.2.20 REPRODUCTIVE HAZARDS

A) No human reproductive effects were found at the time of this review. Acetaldehyde was detected in 4 out of 8 samples of human breast milk. Embryotoxicity and malformations have been seen in animals.

0.2.21 CARCINOGENICITY

0.2.21.1 IARC CATEGORY

A) IARC Carcinogenicity Ratings for CAS75-07-0 (IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, 2006; IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, 2007; IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, 2010; IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, 2010a; IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, 2008; IARC, 2004):

1) IARC Classification

a) Listed as: Acetaldehyde

b) Carcinogen Rating: 2B

1) The agent (mixture) is possibly carcinogenic to humans. The exposure circumstance entails exposures that are possibly carcinogenic to humans. This

category is used for agents, mixtures and exposure circumstances for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence of carcinogenicity in experimental animals. It may also be used when there is inadequate evidence of carcinogenicity in humans but there is sufficient evidence of carcinogenicity in experimental animals. In some instances, an agent, mixture or exposure circumstance for which there is inadequate evidence of carcinogenicity in humans but limited evidence of carcinogenicity in experimental animals together with supporting evidence from other relevant data may be placed in this group.

0.2.21.2 HUMAN OVERVIEW

A) Acetaldehyde has been implicated as a cocarcinogen in the workplace. There was an increased incidence of total cancers in acetaldehyde production workers as compared with the general population, although this study failed to adjust for confounders.

0.2.21.3 ANIMAL OVERVIEW

A) Acetaldehyde is a carcinogen in rats and hamsters.

0.2.22 GENOTOXICITY

A) Acetaldehyde has been active in short-term assays for DNA damage and repair, mutagenicity, chromosome aberrations, sister chromatid exchanges, micronucleus test, and oncogenic transformation (HSDB , 2001; RTECS , 2001).

Laboratory:

A) No toxic levels have been established. For significant exposures, base-line liver and kidney function tests may be indicated.

B) Monitor vital signs and chest x-ray in all significant exposures.

C) Monitor for signs of CNS depression following significant exposures.

Treatment Overview:

0.4.2 ORAL EXPOSURE

A) GASTRIC LAVAGE: Consider after ingestion of a potentially life-threatening amount of poison if it can be performed soon after ingestion (generally within 1 hour). Protect airway by placement in Trendelenburg and left lateral decubitus position or by endotracheal intubation. Control any seizures first.

1) CONTRAINDICATIONS: Loss of airway protective reflexes or decreased level of consciousness in unintubated patients; following ingestion of corrosives; hydrocarbons (high aspiration potential); patients at risk of hemorrhage or gastrointestinal perforation; and trivial or non-toxic ingestion.

B) ACTIVATED CHARCOAL: Administer charcoal as a slurry (240 mL water/30 g charcoal). Usual dose: 25 to 100 g in adults/adolescents, 25 to 50 g in children (1 to 12 years), and 1 g/kg in infants less than 1 year old.

C) EMESIS: Ipecac-induced emesis is not recommended because of the potential for CNS depression.

D) ACUTE LUNG INJURY: Maintain ventilation and oxygenation and evaluate with frequent arterial blood gas or pulse oximetry monitoring. Early use of PEEP and mechanical ventilation may be needed.

E) Acetaldehyde in high concentrations may result in narcosis; patients should be monitored for possible coma and respiratory depression.

0.4.3 INHALATION EXPOSURE

A) INHALATION: Move patient to fresh air. Monitor for respiratory distress. If cough or difficulty breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis. Administer oxygen and assist ventilation as required. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids.

B) ACUTE LUNG INJURY: Maintain ventilation and oxygenation and evaluate with frequent arterial blood gas or pulse oximetry monitoring. Early use of PEEP and mechanical ventilation may be needed.

C) Acetaldehyde in high concentrations may result in narcosis so patients should be monitored for possible coma and respiratory depression.

0.4.4 EYE EXPOSURE

A) DECONTAMINATION: Irrigate exposed eyes with copious amounts of room temperature water for at least 15 minutes. If irritation, pain, swelling, lacrimation, or photophobia persist, the patient should be seen in a health care facility.

0.4.5 DERMAL EXPOSURE

A) OVERVIEW

1) DECONTAMINATION: Remove contaminated clothing and wash exposed area thoroughly with soap and water. A physician may need to examine the area if irritation or pain persists.

Range of Toxicity:

A) 50 ppm for 15 minutes will cause eye irritation in the majority of subjects.

B) Fatalities have occurred in animals exposed to levels of 16,000 ppm for four hours.

[Rumack BH POISINDEX(R) Information System Micromedex, Inc., Englewood, CO, 2011; CCIS Volume 148, edition expires Aug, 2011. Hall AH & Rumack BH (Eds): TOMES(R) Information System Micromedex, Inc., Englewood, CO, 2011; CCIS Volume 148, edition expires Aug, 2011.] **PEER REVIEWED**